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# A Statistical Overview of Youth Employment in the Caribbean

Presented by: Wayne Wesley, PhD, CMgr. (Registrar/CEO)

Prepared by: Atiba Griffith, Assistant Registrar (Statistician)

**Trends and Relationships Among Literacy, Gender Parity, the Labour Force  
and Student Success.**

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# Introduction



The aim of this presentation is to **highlight the trending relationship** among the **literacy rate, gender parity index, the employment rate as a total of the labour force, the employment rate as a ratio of population and the CSEC (Caribbean Secondary Examination Certificate) success rate**. Other variables are used for secondary analysis. In this presentation, regression models are also presented.

All data contained in this presentation represents youth 15-24 years of age as defined by the World Bank for yearly period 2006 to 2021 (projected). The sampled Caribbean territories are; Barbados, Grenada, Guyana, Jamaica and Trinidad and Tobago. These territories were selected based on the availability of consistent data. **All figures for 2020-2021 are projections.**

# Dataset



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Year	Literacy rate, youth total (% of people ages 15-24)	Literacy rate, youth male (% of males ages 15-24)	Literacy rate, youth female (% of females ages 15-24)	Literacy rate, youth (ages 15-24), gender parity index (GPI)	Estimated employment, youth total (% of total labor force ages 15-24)	Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)	Caribbean Small States CSEC Passing (15-24)
2006	94.9629	93.4432	96.5163	1.0329	79.8083	37.0222	58.2241
2007	95.4080	93.8932	96.9541	1.0326	80.6343	37.1658	59.9951
2008	95.5079	94.0516	96.9937	1.0313	80.1306	36.3764	61.1680
2009	95.5985	94.1969	97.0169	1.0299	77.5727	34.7175	65.7273
2010	95.5972	94.2105	97.0060	1.0297	76.6632	33.2048	68.5107
2011	95.6967	94.3529	97.0592	1.0287	75.6702	32.8493	65.9630
2012	95.7114	94.4915	96.9482	1.0260	74.0421	32.0122	61.9768
2013	96.1406	94.9732	97.3202	1.0247	71.9220	31.0562	65.0900
2014	96.2600	95.1391	97.3881	1.0236	73.9685	31.6014	66.3163
2015	96.2161	95.0954	97.3492	1.0237	75.0194	32.0207	67.5558
2016	96.1634	95.0482	97.2650	1.0239	75.3376	31.9103	66.2066
2017	96.1155	95.0037	97.2017	1.0241	75.6043	32.3392	66.6701
2018	96.0718	94.9618	97.1540	1.0243	75.8279	32.8994	71.0649
2019	96.0321	94.9225	97.1181	1.0245	76.0153	32.9007	72.1339
2020	95.9960	94.8854	97.0911	1.0247	76.1724	33.0061	71.0840
2021	95.9630	94.8506	97.0707	1.0248	76.3040	33.1043	70.1963

# Summary Statistics - 1



There are some basic questions that must be answered before any analysis may be completed.

1. Is there a significant difference between the female and male literacy rate? Based on the results below the answer is NO!

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Literacy rate, youth male (% of males ages 15-24)	16	0	16	93.443	95.139	94.595	0.513
Literacy rate, youth female (% of females ages 15-24)	16	0	16	96.516	97.388	97.091	0.208

# Summary Statistics - 2



2. Is there a positive relationship between the estimated employment, youth total (% of total labour force) and the employment to population ratio based on a Pearson Correlation test? The answer is YES!

Variables	Estimated employment, youth total (% of total labor force ages 15-24)*	Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)
Estimated employment, youth total (% of total labor force ages 15-24)	<b>1</b>	<b>0.965</b>
Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)	<b>0.965</b>	<b>1</b>

*Values in bold are different from 0 with a significance level alpha=0.05*

# Summary Statistics - 3



3. Is there a positive relationship among the estimated employment, youth total (% of total labour force), the employment to population ratio and the literacy rate (gender parity index (GPI)) based on a Pearson Correlation test? The answer is YES!

Variables	Literacy rate, youth (ages 15-24), gender parity index (GPI)	Estimated employment, youth total (% of total labor force ages 15-24)*	Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)
Literacy rate, youth (ages 15-24), gender parity index (GPI)	<b>1</b>	<b>0.817</b>	<b>0.891</b>
Estimated employment, youth total (% of total labor force ages 15-24)*	<b>0.817</b>	<b>1</b>	<b>0.965</b>
Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)	<b>0.891</b>	<b>0.965</b>	<b>1</b>

Values in bold are different from 0 with a significance level alpha=0.05

# Summary Statistics - 4



4. Is there a positive relationship among the estimated employment, youth total (% of total labour force), the employment to population ratio and the literacy rate (youth total) based on a Pearson Correlation test? The answer is PARTIALLY!

Variables	Estimated employment, youth total (% of total labor force ages 15-24)*	Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)	Literacy rate, youth total (% of people ages 15-24)
Estimated employment, youth total (% of total labor force ages 15-24)*	<b>1</b>	<b>0.965</b>	<b>-0.774</b>
Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)	<b>0.965</b>	<b>1</b>	<b>-0.860</b>
Literacy rate, youth total (% of people ages 15-24)	<b>-0.774</b>	<b>-0.860</b>	<b>1</b>

Values in bold are different from 0 with a significance level  $\alpha=0.05$

# Summary Statistics - 5



5. Is there a positive relationship among the estimated employment, youth total (% of total labour force), the employment to population ratio, the literacy rate (GPI) and the Caribbean Small States CSEC success rate based on a Pearson Correlation test? The answer is PARTIALLY!

Variables	Literacy rate, youth (ages 15-24), gender parity index (GPI)	Estimated employment, youth total (% of total labor force ages 15-24)*	Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)	Caribbean Small States CSEC Passing (15-24)
Literacy rate, youth (ages 15-24), gender parity index (GPI)	<b>1</b>	<b>0.817</b>	<b>0.891</b>	<b>-0.702</b>
Estimated employment, youth total (% of total labor force ages 15-24)*	<b>0.817</b>	<b>1</b>	<b>0.965</b>	-0.463
Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate)	<b>0.891</b>	<b>0.965</b>	<b>1</b>	<b>-0.601</b>
Caribbean Small States CSEC Passing (15-24)	<b>-0.702</b>	-0.463	<b>-0.601</b>	<b>1</b>

Values in bold are different from 0 with a significance level alpha=0.05



# Summary Statistics Conclusions



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1. There is no statistically significant difference between the female and male literacy rate for youth ages 15-24.
2. There is a significant positive relationship between the estimated employment youth total (% of total labour force) and the employment to population ratio.
3. There is a positive relationship among the estimated employment youth total (% of total labour force) , the employment to population ratio and the literacy rate (gender parity index (GPI)).

# Summary Statistics Conclusions

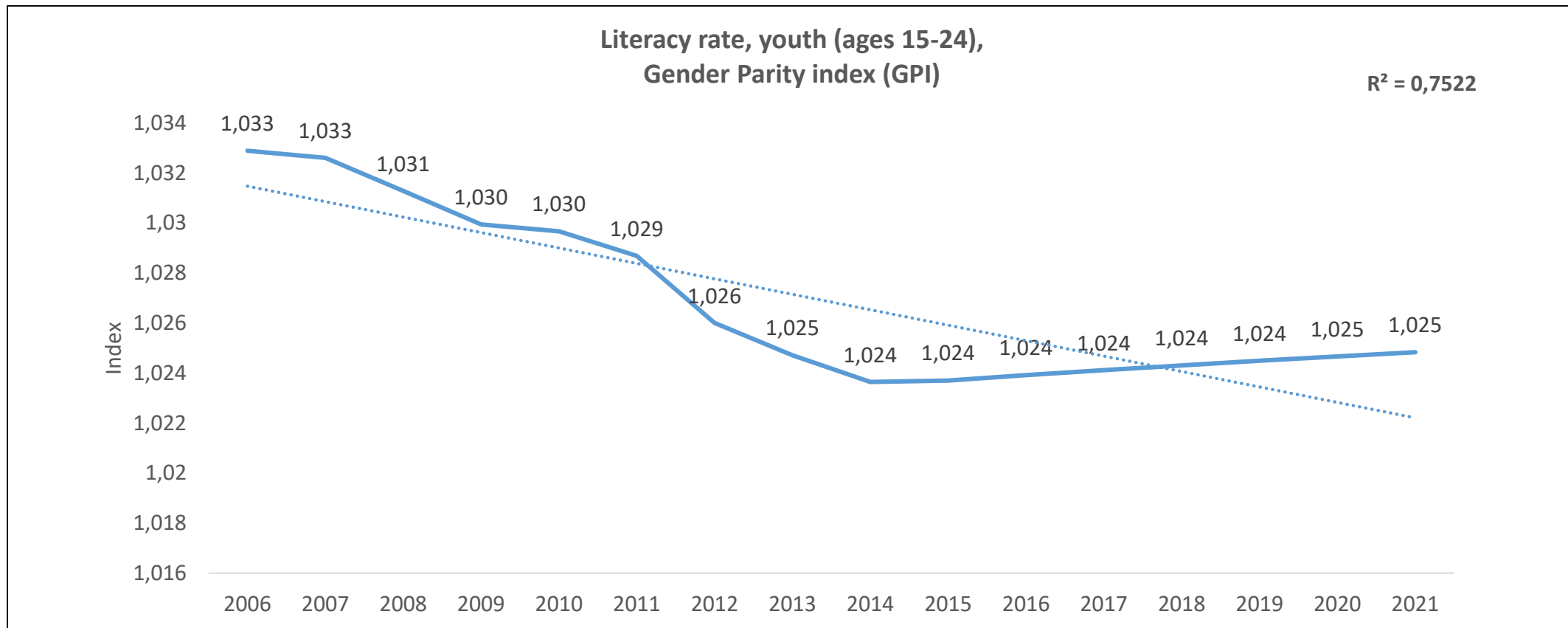


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4. There is a positive relationship between the estimated employment youth total (% of total labour force) and the employment to population ratio. However there is a negative relationship when compared to the literacy rate (youth total).
5. There is a positive relationship between the estimated employment youth total (% of total labour force), the employment to population ratio and the literacy rate (GPI). However there is a negative relationship when compared to the Caribbean Small States CSEC success rate.

# Trend Statistics - 1

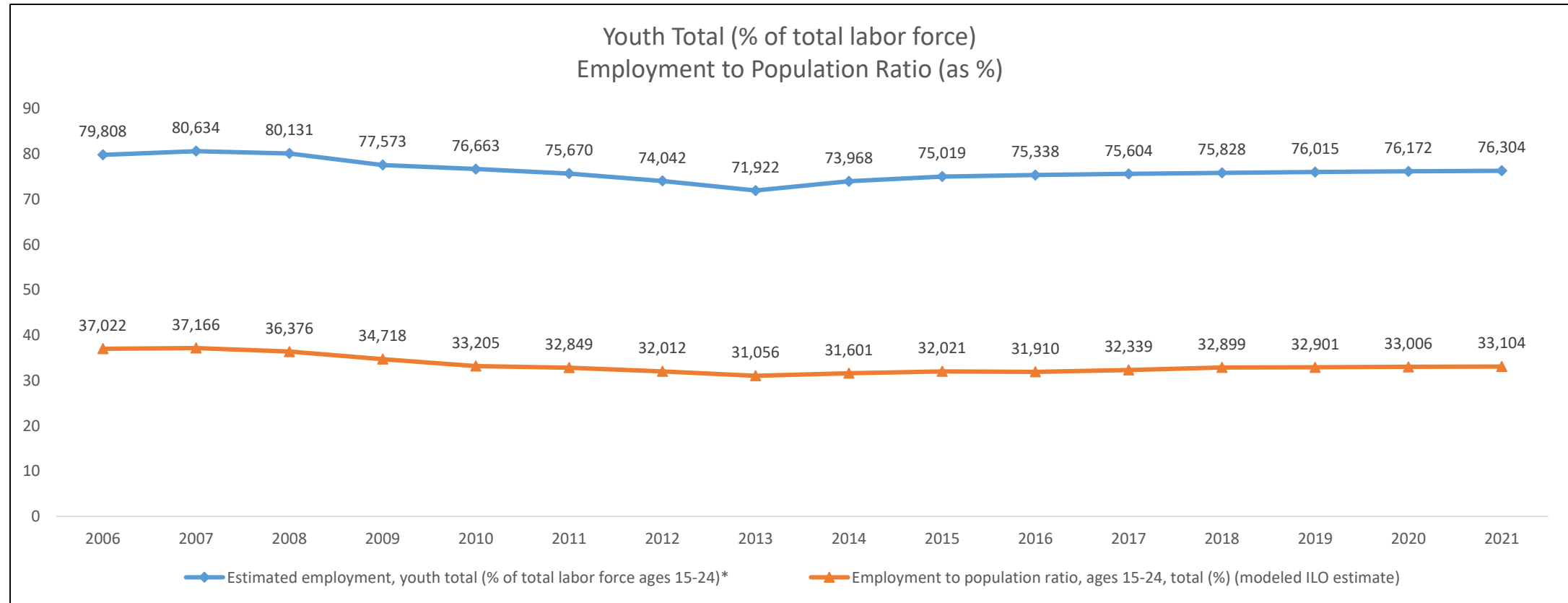
1. Is there a positive outlook based on the trend analysis of; literacy rate (gender parity index (GPI))? The answer is YES!



# Trend Statistics - 2



2. Is there a positive outlook based on the trend analysis of; youth total (% of total labour force and employment to population ratio? The answer is YES!

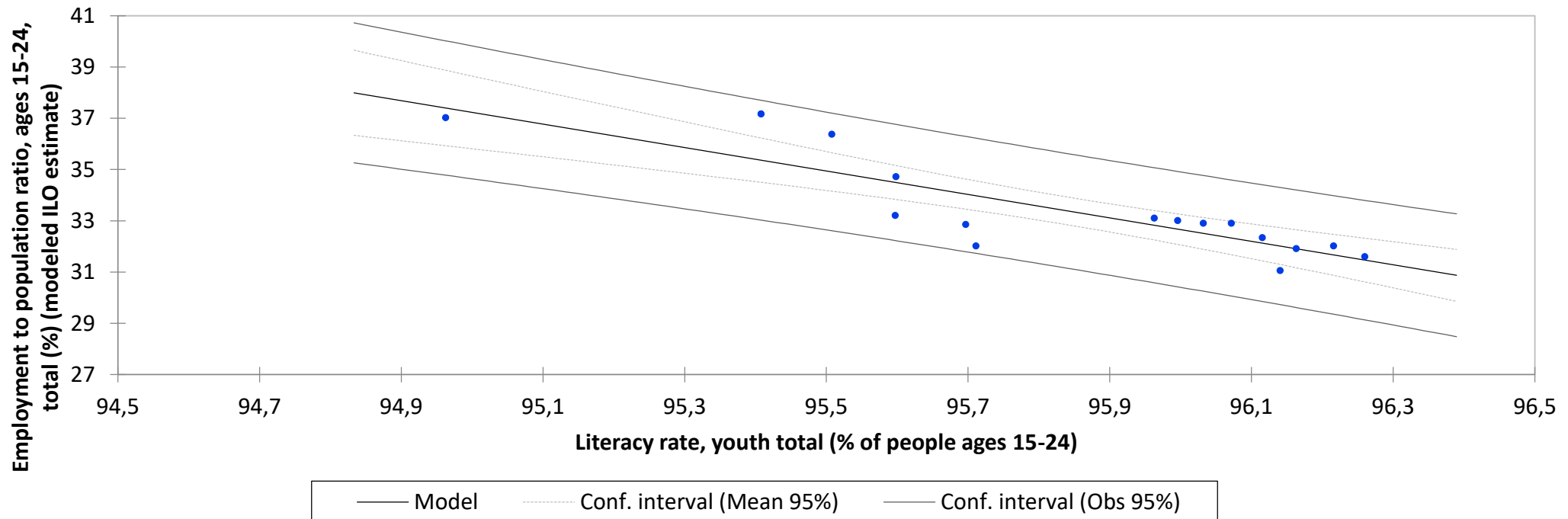


# Regression Model - 1



1. Can the literacy rate (youth total, % of people ages 15-24) be used to explain the employment to population ratio, ages 15-24? The answer is YES!

Regression of Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate) by Literacy rate, youth total (% of people ages 15-24) ( $R^2=0.739$ )



# Regression Model – 2a



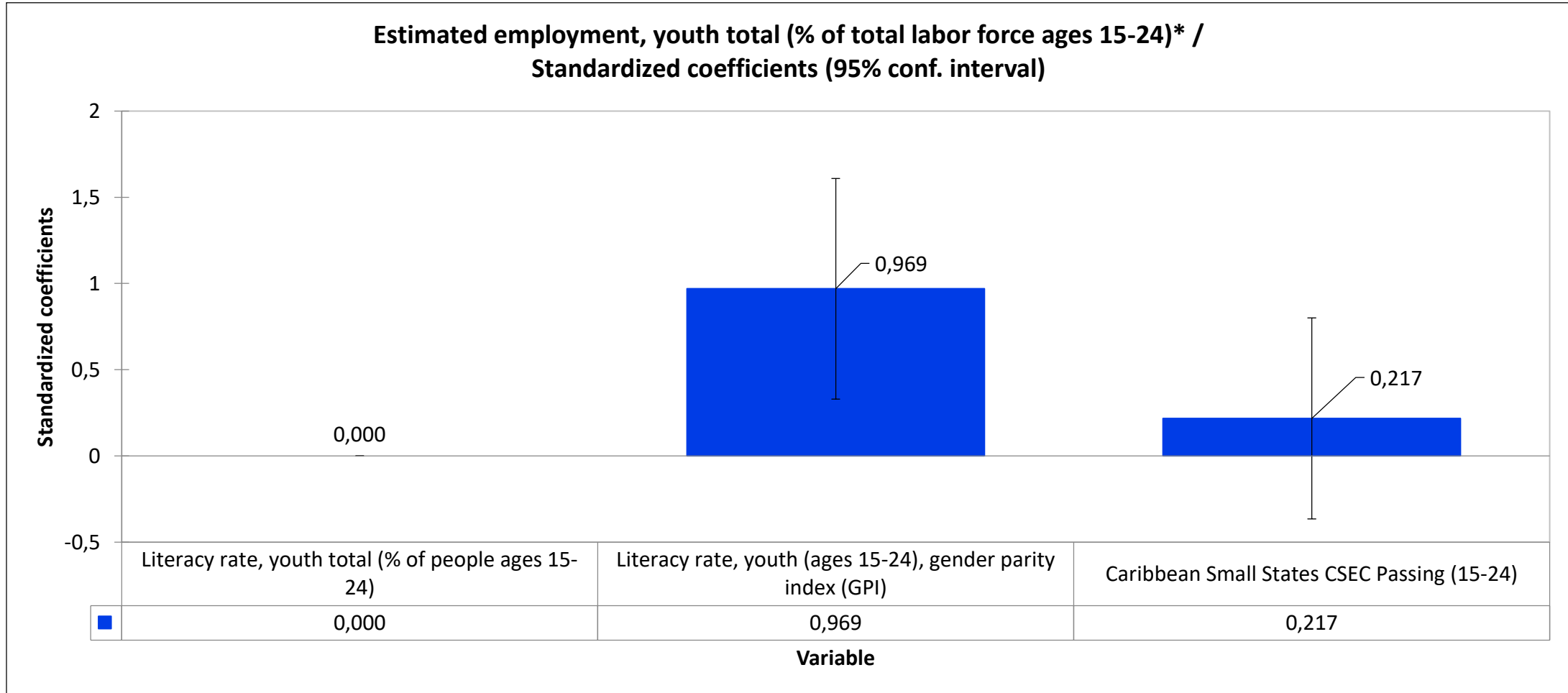
## Regression of variable Estimated employment, youth total (% of total labor force ages 15-24):

Summary of the variables selection Estimated employment, youth total (% of total labor force ages 15-24):

Nbr. of variables	Variables	MSE	R <sup>2</sup>	Adjusted R <sup>2</sup>	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
2	Literacy rate, youth (ages 15-24), gender parity index (GPI) / Caribbean Small States CSEC Passing (15-24)	1.924	0.691	<b>0.644</b>	2.011	13.150	15.467	0.391
3	Literacy rate, youth total (% of people ages 15-24) / Literacy rate, youth (ages 15-24), gender parity index (GPI) / Caribbean Small States CSEC Passing (15-24)	2.083	0.691	0.614	4.000	15.135	18.225	0.441

The best model for the selected selection criterion is displayed in blue

# Regression Model – 2b



# Regression Model – 3a



## Regression of variable Estimated employment, youth total (% of total labor force ages 15-24):

Summary of the variables selection Estimated employment, youth total (% of total labor force ages 15-24):

Nbr. of variables	Variables	MSE	R <sup>2</sup>	Adjusted R <sup>2</sup>	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
2	Literacy rate, youth male (% of males ages 15-24) / Caribbean Small States CSEC Passing (15-24)	2.266	0.636	0.580	5.185	15.766	18.083	0.461
3	Literacy rate, youth total (% of people ages 15-24) / Literacy rate, youth male (% of males ages 15-24) / Literacy rate, youth female (% of females ages 15-24)	1.778	0.737	<b>0.671</b>	3.001	12.608	15.698	0.376
4	Literacy rate, youth total (% of people ages 15-24) / Literacy rate, youth male (% of males ages 15-24) / Literacy rate, youth female (% of females ages 15-24) / Caribbean Small States CSEC Passing (15-24)	1.940	0.737	0.641	5.000	14.607	18.470	0.426

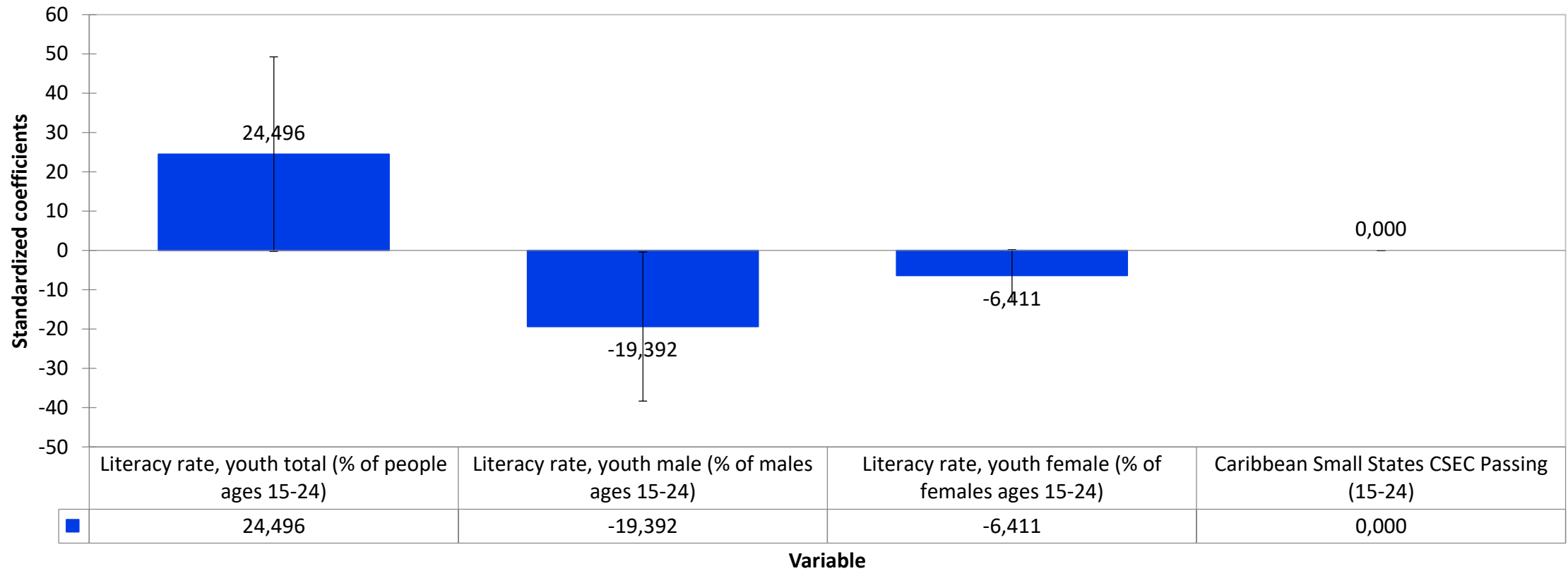
*The best model for the selected selection criterion is displayed in blue*



# Regression Model – 3b



Estimated employment, youth total (% of total labor force ages 15-24)\* / Standardized coefficients (95% conf. interval)



# Regression Model – 4a



**Regression of variable Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate):**

Summary of the variables selection Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate):

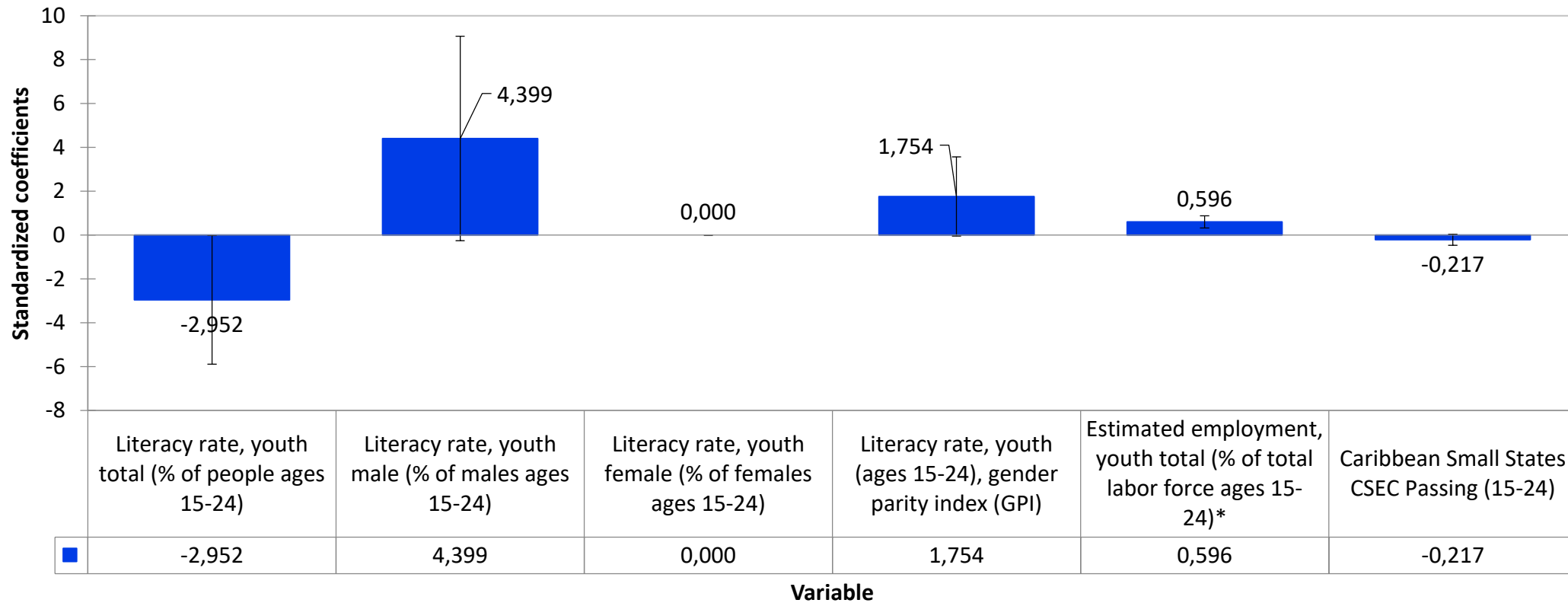
Nbr. of variables	Variables	MSE	R <sup>2</sup>	Adjusted R <sup>2</sup>	Mallows' Cp	Akaike's AIC	Schwarz's SBC	Amemiya's PC
2	Literacy rate, youth male (% of males ages 15-24) / Estimated employment, youth total (% of total labor force ages 15-24)*	0.148	0.965	0.960	3.961	-27.887	-25.569	0.044
3	Literacy rate, youth male (% of males ages 15-24) / Estimated employment, youth total (% of total labor force ages 15-24)* / Caribbean Small States CSEC Passing (15-24)	0.137	0.970	0.963	3.898	-28.445	-25.355	0.043
4	Literacy rate, youth female (% of females ages 15-24) / Literacy rate, youth (ages 15-24), gender parity index (GPI) / Estimated employment, youth total (% of total labor force ages 15-24)* / Caribbean Small States CSEC Passing (15-24)	0.143	0.971	0.961	5.430	-27.088	-23.225	0.046
5	Literacy rate, youth total (% of people ages 15-24) / Literacy rate, youth male (% of males ages 15-24) / Literacy rate, youth (ages 15-24), gender parity index (GPI) / Estimated employment, youth total (% of total labor force ages 15-24)* / Caribbean Small States CSEC Passing (15-24)	0.125	0.977	<b>0.966</b>	5.062	-28.801	-24.166	0.042

The best model for the selected selection criterion is displayed in blue

# Regression Model – 4b



Employment to population ratio, ages 15-24, total (%) (modeled ILO estimate) / Standardized coefficients (95% conf. interval)



# Trend & Regression Summary



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1. There is a positive outlook for the literacy rate (gender parity index (GPI)). It should be noted that a value of greater than one implies that females are more likely to have access to education while a value of less than one implies that males are more likely to have access to education. A value of one suggest equality between male and female with respect to education access.
2. There is a positive outlook based on the trend analysis of youth total as a % of the labour force and the employment to population ratio as a %.
3. Regression model – 1 suggests that the **literacy rate, youth total** explains **73.9% of the variability** of the dependent variable employment to population ratio.

# Trend & Regression Summary



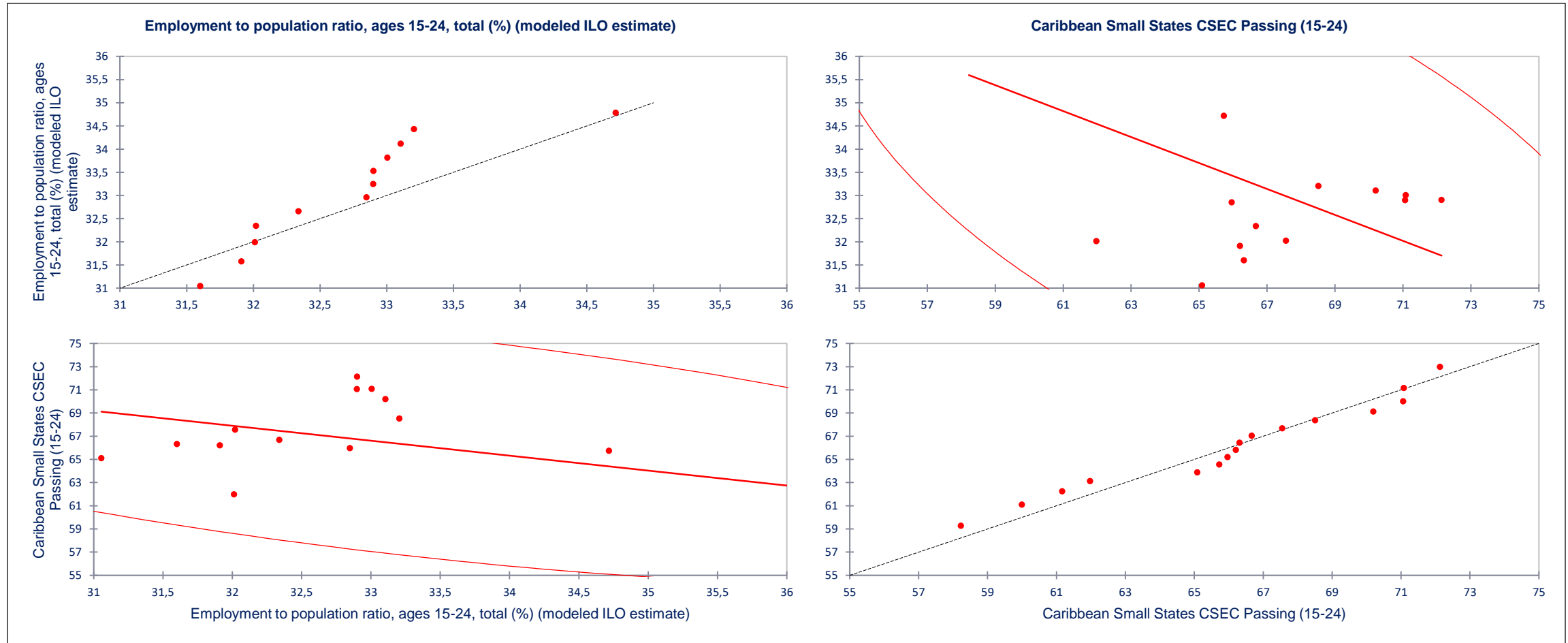
4. Regression model – 2a suggests that the **literacy rate, youth** (ages 15-24), **gender parity index (GPI)** and **Caribbean Small States CSEC Passing (15-24)** explains **69.1% of the variability** of the dependent variable estimated employment, youth total.
5. Regression model – 3a suggests that the **literacy rate, youth total** (% of people ages 15-24), **literacy rate, youth male** (% of males ages 15-24) and the **literacy rate, youth female** (% of females ages 15-24) explains **73.7%** of the variability of the dependent variable estimated employment, youth total.
6. Regression model – 4a suggests that the **literacy rate, youth total** (% of people ages 15-24) , **literacy rate, youth male** (% of males ages 15-24), **literacy rate, youth** (ages 15-24), **gender parity index (GPI)**, **estimated employment, youth total** (% of total labor force ages 15-24) and the Caribbean Small States CSEC Passing (15-24) explains **97.7% of the variability** of the dependent variable employment to population ratio.



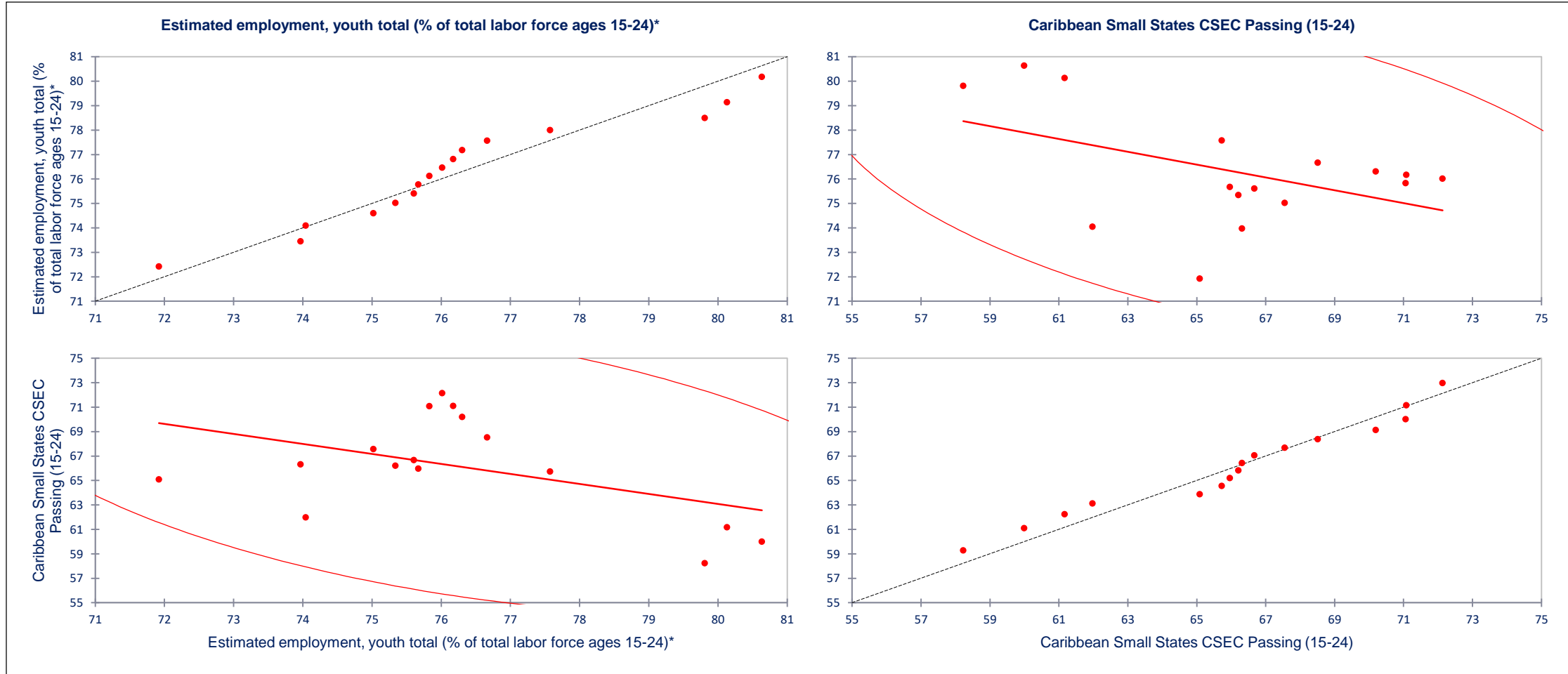
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# Appendix

# Correlation Matrix – 1



# Correlation Matrix – 2

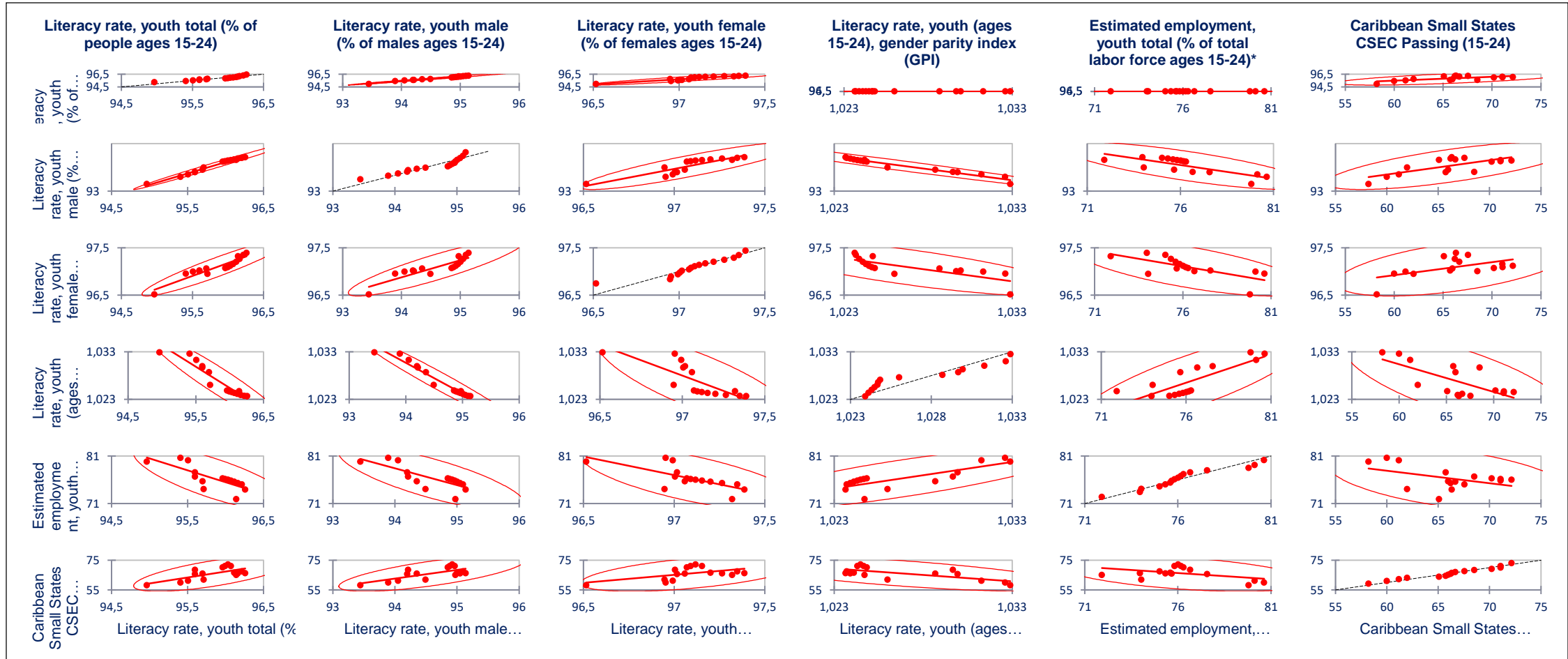




# Correlation Matrix – Appendix



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# Questions?



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# The End